

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-52. (Cancelled)

53. (Currently Amended) A process for hydrogenating, to the corresponding cyclohexyl derivative, one or more benzenepolycarboxylic acids or one or more derivatives thereof, or a mixture of one or more benzenepolycarboxylic acids or one or more derivatives thereof by bringing the benzenepolycarboxylic acid or the derivative thereof or the mixture into contact with a hydrogen-containing gas in the presence of a catalyst, said catalyst comprising a single metal as a hydrogenation-dehydrogenation component, applied to a catalyst support comprising one or more ordered mesoporous materials, at least one of which materials is ordered mesoporous silica, wherein said ordered mesoporous silica is a metallosilicate.
54. (Previously Presented) The process as claimed in claim 53 wherein the catalyst support further comprises one or more macroporous materials combined in admixture with the one or more ordered mesoporous materials.
55. (Previously Presented) The process as claimed in claim 54 wherein the macroporous material is amorphous.
56. (Previously Presented) The process as claimed in Claim 54 wherein the macroporous material is alumina.
57. (Previously Presented) The process as claimed in claim 56 wherein the catalyst support further comprises one or more mixed porosity materials combined in admixture with the one or more ordered mesoporous materials.
58. (Previously Presented) The process as claimed in claim 57 wherein the mixed porosity material is amorphous.

59. (Previously Presented) The process as claimed in claim 57 wherein the mixed porosity material is alumina.
60. (Previously Presented) The process as claimed in claim 57 wherein the mixed porosity material contains mesopores and macropores.
61. (Cancelled)
62. (Previously Presented) The process as claimed in claim 53 wherein at least one of the ordered mesoporous materials is a material that is synthesized using amphiphilic compounds as directing agents.
63. (Previously Amended) The process as claimed in claim 62 wherein one or more of the ordered mesoporous materials is selected from the group consisting of materials designated as SBA (Santa Barbara), materials designated as FSM (Folding Sheet Mechanism), materials designated as MSU (Michigan State), materials designated as TMS or Transition Metal Sieves, materials designated as FMMS or Functionalised Monolayers on Mesoporous Supports or materials designated as APM or Acid Prepared Mesostructure or ordered mesoporous materials designated as M41S.
64. (Previously Presented) The process as claimed in claim 63 wherein the one or more ordered mesoporous materials designated as M41S are selected from the group consisting of MCM-41, MCM-48 and MCM-50.
65. (Previously Presented) The process as claimed in claim 64 wherein the ordered mesoporous material is MCM-41.
66. (Currently Amended) The process as claimed in claim 53 wherein said single metal is selected from transition group VIII of the Periodic Table.
67. (Currently Amended) The process as claimed in claim 53 wherein said single metal is selected from the group consisting of platinum, rhodium, palladium, cobalt, nickel ruthenium.

68. (Currently Amended) The process as claimed in claim 53 wherein said single metal is selected from the group consisting of platinum, palladium, and ruthenium.
69. (Cancelled)
70. (Currently Amended) The process as claimed in claim 53 wherein said single metal is ruthenium.
71. (Currently Amended) The process as claimed in claim 53 wherein said single metal is selected from transition group I or VII of the Periodic Table.
72. (Currently Amended) The process as claimed in claim 53 wherein said single metal is present in an amount of from 0.01 to 30% by weight, based on the total weight of the catalyst.
73. (Previously Presented) The process as claimed in claim 54 wherein the one or more macroporous materials have a BET surface area of at most 30 m²/g.
74. (Previously Presented) The process as claimed in claim 53 wherein the one or more mesoporous materials have a BET surface area of greater than 600 m²/g.
75. (Previously Presented) The process as claimed in claim 53 wherein the one or more mesoporous materials have a BET surface area of greater than 1000 m²/g.
76. (Previously Presented) The process as claimed in any claim 53 wherein the metal surface area on the catalyst is from 0.01 to 10 m²/g of the catalyst.
77. (Previously Presented) The process as claimed in any claim 53 wherein the metal surface area on the catalyst is from 0.05 to 5 m²/g of the catalyst.
78. (Previously Presented) The process as claimed in claim 53 wherein the metal surface area on the catalyst is from 0.05 to 3 m²/g of the catalyst.

79. (Previously Amended) The process as claimed in claim 53 wherein said catalyst has a metal dispersion value relating to the strongly chemisorbed component in excess of 20%.
80. (Previously Amended) The process as claimed in claim 53 wherein said catalyst has a metal dispersion value relating to the strongly chemisorbed component in excess of 25%.
81. (Previously Amended) The process as claimed in claim 53 wherein said catalyst has a metal dispersion value relating to the strongly chemisorbed component in excess of 30%.
82. (Previously Amended) The process as claimed in any claim 53 wherein said catalyst has a total metal dispersion value in excess of 45%.
83. (Previously Amended) The process as claimed in claim 53 wherein said catalyst has a total metal dispersion value in excess of 50%.
84. (Previously Presented) The process as claimed in claim 53 wherein the hydrogenation catalyst has a total metal dispersion value in excess of 55%.
85. (Previously Presented) The process as claimed in any claim 53 wherein the one or more benzenepolycarboxylic acids is selected from the group consisting of phthalic acid, terephthalic acid, isophthalic acid, trimellitic acid, trimesic acid, hemimellitic acid and pyromellitic acid and mixtures of two or more thereof.
86. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenepolycarboxylic acid derivatives are selected from the group consisting of monoalkyl and dialkyl esters of phthalic acid, terephthalic acid and isophthalic acid, monoalkyl, dialkyl and trialkyl esters of trimellitic acid, trimesic acid and hemimellitic acid, monoalkyl, dialkyl, trialkyl and tetraalkyl esters of pyromellitic acid, anhydrides of phthalic acid, trimellitic acid and hemimellitic acid, pyromellitic dianhydride and mixtures of two or more thereof.

87. (Previously Presented) The process as claimed in claim 86 wherein the alkyl groups are linear or branched and each group has from 1 to 30 carbon atoms.
88. (Previously Presented) The process as claimed in claim 86 wherein the alkyl groups are linear or branched and each group has from 2 to 20 carbon atoms.
89. (Previously Presented) The process as claimed in claim 86 wherein the alkyl groups are linear or branched and each group has from 3 to 18 carbon atoms.
90. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenecarboxylic acid derivates are one or more phthalates or isophthalates selected from the group consisting of monomethyl phthalate, dimethyl phthalate, diethyl phthalate, di-n-propyl phthalate, di-n-butyl phthalate, di-tert-butyl phthalate, diisobutyl phthalate, monoglycol esters of phthalic acid, diglycol esters of phthalic acid, di-n-octyl phthalate, diisooctyl phthalate, di-2-ethylhexyl phthalate, di-n-nonyl phthalate, diisononyl phthalate, di-n-decyl phthalate, diisodecyl phthalate, di-n-undecyl phthalate, diisoundecyl phthalate, diisododecyl phthalate, di-n-octadecyl phthalate, diisooctadecyl phthalate, di-n-eicosyl phthalate, monocyclohexyl phthalate, dicyclohexyl phthalate; alkyl isophthalates such as monomethyl isophthalate, dimethyl isophthalate, diethyl isophthalate, di-n-propyl isophthalate, di-n-butyl isophthalate, di-tert-butyl isophthalate, diisobutyl isophthalate, monoglycol esters of isophthalic acid, diglycol esters of isophthalic acid, di-n-octyl isophthalate, diisooctyl isophthalate, di-2-ethylhexyl isophthalate, di-n-nonyl isophthalate, diisononyl isophthalate, di-n-decyl isophthalate, diisodecyl isophthalate, di-n-undecyl isophthalate, di-isoundecyl isophthalate, diisododecyl isophthalate, di-n-octadecyl isophthalate, diisooctadecyl isophthalate, di-n-eicosyl isophthalate, monocyclohexyl isophthalate and dicyclohexyl isophthalate.
91. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenecarboxylic acid derivates are one or more terephthalates selected from the group consisting of monomethyl terephthalate, dimethyl terephthalate, diethyl terephthalate, di-n-propyl terephthalate, di-n-butyl terephthalate, di-tert-butyl terephthalate, diisobutyl terephthalate, monoglycol esters of terephthalic acid, diglycol esters of terephthalic acid, di-n-octyl terephthalate, diisooctyl terephthalate,

mono-2-ethylhexyl terephthalate, di-2-ethylhexyl terephthalate, di-n-nonyl terephthalate, diisononyl terephthalate, di-n-decyl terephthalate, di-n-undecyl terephthalate, diisodecyl terephthalate, diisoundecyl terephthalate, diisododecyl terephthalate, di-n-octadecyl terephthalate, diisooctadecyl terephthalate, di-n-eicosyl terephthalate, ditridecyl terephthalate, diisotridecyl terephthalate, monocyclohexyl terephthalate and dicyclohexyl terephthalate.

92. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenecarboxylic acid derivatives are one or more alkyl trimellitates selected from the group consisting of such as monomethyl trimellitate, dimethyl trimellitate, diethyl trimellitate, di-n-propyl trimellitate, di-n-butyl trimellitate, di-tert-butyl trimellitate, diisobutyl trimellitate, the monoglycol ester of trimellitic acid, diglycol esters of trimellitic acid, di-n-octyl trimellitate, diisooctyl trimellitate, di-2-ethylhexyl trimellitate, di-n-nonyl trimellitate, diisononyl trimellitate, di-n-decyl trimellitate, diisodecyl trimellitate, di-n-undecyl trimellitate, diisoundecyl trimellitate, diisododecyl trimellitate, di-n-octadecyl trimellitate, diisooctadecyl trimellitate, di-n-eicosyl trimellitate, monocyclohexyl trimellitate, dicyclohexyl trimellitate and trimethyl trimellitate, triethyl trimellitate, tri-n-propyl trimellitate, tri-n-butyl trimellitate, tri-tert-butyl trimellitate, triisobutyl trimellitate, triglycol esters of trimellitic acid, tri-n-octyl trimellitate, triisooctyl trimellitate, tri-2-ethylhexyl trimellitate, tri-n-nonyl trimellitate, tri-isononyl trimellitate, tri-n-decyl trimellitate, triisododecyl trimellitate, tri-n-undecyl trimellitate, tri-isoundecyl trimellitate, triisododecyl trimellitate, tri-n-octadecyl trimellitate, triisooctadecyl trimellitate, tri-n-eicosyl trimellitate and tricyclohexyl trimellitate.
93. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenecarboxylic acid derivatives are one or more alkyl trimesates selected from the group consisting of monomethyl trimesate, dimethyl trimesate, diethyl trimesate, di-n-propyl trimesate, di-n-butyl trimesate, di-tert-butyl trimesate, diisobutyl trimesate, monoglycol esters of trimesic acid, diglycol esters of trimesic acid, di-n-octyl trimesate, diisooctyl trimesate, di-2-ethylhexyl trimesate, di-n-nonyl trimesate, diisononyl trimesate, di-n-decyl trimesate, diisodecyl trimesate, di-n-undecyl trimesate, di-isoundecyl trimesate, diisododecyl trimesate, di-n-octadecyl trimesate, diisooctadecyl trimesate, di-n-eicosyl trimesate, monocyclohexyl trimesate,

dicyclohexyl trimesate, and also trimethyl trimesate, triethyl trimesate, tri-n-propyl trimesate, tri-n-butyl trimesate, tri-tert-butyl trimesate, triisobutyl trimesate, triglycol esters of trimesic acid, tri-n-octyl trimesate, triisooctyl trimesate, tri-2-ethyl-hexyl trimesate, tri-n-nonyl trimesate, tri-isononyl trimesate, tri-n-decyl trimesate, triisododecyl trimesate, tri-n-undecyl trimesate, tri-isoundecyl trimesate, triisododecyl trimesate, tri-n-octadecyl trimesate, triisooctadecyl trimesate, tri-n-eicosyl trimesate and tricyclohexyl trimesate.

94. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenecarboxylic acid derivates are one or more alkyl hemimellitates selected from the group consisting of monomethyl hemimellitate, dimethyl hemimellitate, diethyl hemimellitate, di-n-propyl hemimellitate, di-n-butyl hemimellitate, di-tert-butyl hemimellitate, diisobutyl hemimellitate, monoglycol esters of hemimellitic acid, diglycol esters of hemimellitic acid, di-n-octyl hemimellitate, diisooctyl hemimellitate, di-2-ethylhexyl hemimellitate, di-n-nonyl hemimellitate, diisononyl hemimellitate, di-n-decyl hemimellitate, diisodecyl hemimellitate, di-n-undecyl hemimellitate, di-isoundecyl hemimellitate, diisododecyl hemimellitate, di-n-octadecyl hemimellitate, diisooctadecyl hemimellitate, di-n-eicosyl hemimellitate, monocyclohexyl hemimellitate, dicyclohexyl hemimellitate, and also trimethyl hemimellitate, triethyl hemimellitate, tri-n-propyl hemimellitate, tri-n-butyl hemimellitate, tri-tert-butyl hemimellitate, triisobutyl hemimellitate, triglycol esters of hemimellitic acid, tri-n-octyl hemimellitate, triisooctyl hemimellitate, tri-2-ethylhexyl hemimellitate, tri-n-nonyl hemimellitate, tri-isononyl hemimellitate, tri-n-decyl hemimellitate, triisodecyl hemimellitate, tri-n-undecyl hemimellitate, tri-isoundecyl hemimellitate, triisododecyl hemimellitate, tri-n-octadecyl hemimellitate, triisooctadecyl hemimellitate, tri-n-eicosyl hemimellitate and tricyclohexyl hemimellitate.
95. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenecarboxylic acid derivates are one or more alkyl pyromellitates selected from the group consisting of monomethyl pyromellitate, dimethyl pyromellitate, diethyl pyromellitate, di-n-propyl pyromellitate, di-n-butyl pyromellitate, di-tert-butyl pyromellitate, diisobutyl pyromellitate, monoglycol esters of pyromellitic acid, diglycol esters of pyromellitic acid, di-n-octyl pyromellitate, diisooctyl pyromellitate,

di-2-ethylhexyl pyromellitate, di-n-nonyl pyromellitate, diisononyl pyromellitate, di-n-decyl pyromellitate, diisodecyl pyromellitate, di-n-undecyl pyromellitate, di-isoundecyl pyromellitate, diisododecyl pyromellitate, di-n-octadecyl pyromellitate, diisooctadecyl pyromellitate, di-n-eicosyl pyromellitate, monocyclohexyl pyromellitate, trimethyl pyromellitate, triethyl pyromellitate, tri-n-propyl pyromellitate, tri-n-butyl pyromellitate, tri-tert-butyl pyromellitate, triisobutyl pyromellitate, triglycol esters of pyromellitic acid, tri-n-octyl pyromellitate, triisooctyl pyromellitate, tri-2-ethylhexyl pyromellitate, tri-n-nonyl pyromellitate, tri-isononyl pyromellitate, triisodecyl pyromellitate, tri-n-decyl pyromellitate, tri-n-undecyl pyromellitate, tri-isoundecyl pyromellitate, triisododecyl pyromellitate, tri-n-octadecyl pyromellitate, triisooctadecyl pyromellitate, tri-n-eicosyl pyromellitate, tricyclohexyl pyromellitate, and also tetramethyl pyromellitate, tetraethyl pyromellitate, tetra-n-propyl pyromellitate, tetra-n-butyl pyromellitate, tetra-tert-butyl pyromellitate, tetraisobutyl pyromellitate, tetraglycol esters of pyromellitic acid, tetra-n-octyl pyromellitate, tetraisooctyl pyromellitate, tetra-2-ethylhexyl pyromellitate, tetra-n-nonyl pyromellitate, tetraisododecyl pyromellitate, tetra-n-undecyl pyromellitate, tetraisododecyl pyromellitate, tetra-n-octadecyl pyromellitate, tetraisooctadecyl pyromellitate, tetra-n-eicosyl pyromellitate and tetracyclohexyl pyromellitate.

96. (Previously Presented) The process as claimed in claim 53 wherein the one or more benzenecarboxylic acid derivates are one or more derivates selected from the group consisting of alkyl terephthalates, alkyl phthalates, alkyl isophthalates, dialkyl trimellitates, trialkyl trimellitates, dialkyl trimesates, trialkyl trimesates, dialkyl hemimellitates, trialkyl hemimellitates, dialkyl pyromellitates, trialkyl pyromellitates and tetraalkyl pyromellitates, in which one or more of the alkyl groups contain 5, 6 or 7 carbon atoms.
97. (Cancelled)
98. (Cancelled)
99. (Previously Presented) The process as claimed in claim 53, wherein the hydrogenation is carried out in the presence of a solvent or diluent.

100. (Previously Presented) The process as claimed in claim 53, wherein the hydrogenation is carried out continuously.
101. (Previously Presented) The process as claimed in claim 53 wherein the hydrogenation process is carried out at a pressure of 25 to 70 bar.
- 102 - 106. (Cancelled)
107. (New) The process as claimed in Claim 53, wherein said single metal is ruthenium.
108. (New) The process as claimed in Claim 107, further comprising a second single metal, other than ruthenium, selected from transition group VIII of the Periodic Table.